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Re-emergence of bovine trichomonosis and genital campilobacteriosis in beef cattle kept in extensive conditions in spain

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Objectives: Bovine trichomonosis (BT) and bovine genital campilobacteriosis (BGC) are two venereal diseases considered as important cause of early reproductive failure. In Europe, the advent of artificial insemination and effective control programmes has greatly reduced the incidence of the two diseases. However, reform of the Common Agricultural Policy and increased emphasis on environmentally friendly land management has encouraged the expansion of extensively managed beef herds in Europe. These systems usually use natural breeding and commonly have cattle grazing and communal pastures, which are significant risk factors for both BT and BGC. Thus, these changes in farming practice could lead to the re-emergence of these two diseases. The purpose of this study was to investigate the prevalence and risk factors associated to BT and BGC in Spanish beef bulls from: i) one representative Spanish beef cattle breeds usually managed in mountain areas: Asturiana de la Montaña (AM) and ii) bulls from beef herds with early reproductive failure.
Materials and Methods: Preputial smegma samples were collected with a plastic scraper prior to mating season. Samples were cultured in InPouchTM medium and in Lander's transport medium for detection of Tritrichomonas foetus and Campylobacter fetus subespecie venerealis, respectively. All suspect cultures were confirmed by a PCR test. In addition, epidemiological data were collected by means of a standard questionnaire.
Results: In AM, T. foetus infection was demonstrated in 31.1% (32/103) bulls and 41.5% (27/65) herds. In infected herds, a significant deleterious effect on reproductive efficiency was found. When the age of infected animals was analyzed, AM bulls older than 3 years (39.7%) were more likely to be infected than young bulls (16%) ($P<0.05$; OR=3.5, CI=1.1, 11.2), indicating that older bulls increased the likelihood of disease. Control measures were accomplished by removing infected AM bulls and the herd-prevalence decreased to 17.5% (14/80) ($P<0.01$) in the next season. In herds showing early reproductive failure, T. foetus and C. fetus venerealis were detected in 22.4% (39/174) and 6.93% (12/173) bulls, respectively. Dual infections were observed in 3.97% bulls.
Conclusions: The results reported here indicate a re-emergence of venereal diseases and highlight the importance of implementing testing programmes to evaluate the real importance of these diseases in European countries and the need for including these pathogens in the differential diagnosis of early reproductive failure.

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Granulomatous meningo-encephalitis caused by Toxoplasma gondii in three bulls, a possible explanation for unexplained sporadic bovine meningo-encephalitis

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Objectives: Toxoplasma gondii is a protozoon, responsible for abortion and congenital abnormalities, 20 percent of cattle could be seropositive in Europe. It is known to cause encephalitis in domestic animals but there no evidence for the bovine species. Between 2009 and 2011, three Blonde d'Aquitaine bulls were referred for normothermic sporadic encephalitis. Two reproduction bulls and one fattening bull, have shown head pressing, head tilt and circling on the left. They were all housed in different buildings, fed without silage, and did not have the same nutrition.
Materials and Methods: General examination revealed normothermia, normal cardiac and respiratory rate, pulse and muccous membranes. Nervous propedeutic brought conserved vision, slow pupilar reflexes and permanent mydriasis. Other exams only revealed atone rumen with impacted content, dead protozoa and inactive flora. Lab exams showed decreased glutaraldehyde test coagulation time, increased protein concentration with hypergammaglobulinemia, lymphopenia, increased neutrophils and macrophages. The first two animals were referred more than 5 days after the beginning of the symptoms, one already in left lateral recumbency. Though they were given atropine 0.05mg/kg (IV, BID), micronized coal (1g/kg, PO, SID), Ceftiofur 1g (IV, BID), Lactate-Ringer (3ml/kg/h), Thiamine (10mg/kg, IM, SID), they died within 4 days. The last one was referred only one day after showing head tilt; he only received natrium penicillin (60.000 UI/kg, IV, TID, 6 days) and Flunixin-meglumin (1.1mg/kg, IV, SID, 2 days) and survived. At that time, routine tests for known encephalitis agent were negatives.
Results: After the death of the first two bulls, necropsy showed mild meningitis. Slides from the brain revealed granulomatous encephalitis, with perivascular mononuclear cells, and giant cells. It was found out some unknown cysts in gut, lung and brain. Protozoa were sought and seroconversion was positive on indirect immunofluorescence IgM and IgG (Day 2 versus day 22) for T. gondii. Immuno-histochemistry revealed the presence of tachyzoïts in large number in several organs, including the brain.
Conclusions: However T. gondii has been described as an agent of diseases in bovine species, these are the first described cases of meningo-encephalitis in adults. Diagnosis is not easy; tachyzoïts could be confounded with other structures during routine histopathology. A major clinical sign could be the mydriasis, observed in other species. That result could bring explanation for unexplained sporadic granulomatous meningo-encephalitis.

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Evaluation of ovine abortion associate with Toxoplasma gondii by serologic and molecular techniques in Tabriz, Iran

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Objectives: Toxoplasmosis due to Toxoplasma gondii is a zoonotic disease which is cause abortion in man and animals. The diagnosis of T. gondii abortion is based on the detection of specific antibodies in the serologic tests. Decisive diagnosis of the disease is not practiced only by using serologic methods. But Several PCR-based methods have been developed in the last years targeting the parasite B1 sequence. The aim of the present study was to evaluation and comparision of ovine abortion associate with Toxoplasma gondii by serologic and molecular techniques in Tabriz, Iran.
Materials and Methods: Serum samples from 143 aborted sheep were analysed by the Indirect Fluorescent Antibody Test (IFAT).Also 80 samples of mixed tissues from aborted foetuses, such as brain, kidney, heart, lung and spleen were examined were squashed and were digested by using lysing fluid and proteinase K. Extraction of DNA was done by using silica columns. Quality and quantities of DNA concentration was determined by UV absorption by spectrophotometer in agarose gel. Nested PCR was performed for diagnosis of B1 genome. PCR products were analyzed on 2.5% agarose gel. After electrophoresis at 100 V for 60 min, gel were stained with ethidium bromide and examined by UV lamp.
Results: Overall seroprevalence of antibody of Toxoplasma in aborted sheep in Tabriz was 6.29%. In first round of the nested PCR, 5 out of 80 (6.25%) samples were found to be positive with a 194 bp amplicon. The same samples were conducted to the second round and all of them were confirmed to be positive with a 93 bp amplicon.
Conclusions: Based on the results of present studies is estimated that abortion due to Toxoplasa in sheep is not in high prevalence in Tabriz and other causes must be considered for estimating the cause of these abortions. Also this finding showed the correlation of the results between IFAT and PCR methods in recognition of Toxoplasmosis.